



THE MULTI-ROLE RESPIRATORY PROTECTION SYSTEM



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Technical Data

Breathing performance in SCBA mode					Breathing performance in ST PAPR mode		
Breathing rate	103 liters per minute with mask pressure above ambient				Breathing rate	125 - 165 liters per minute	
Environmental range	The operating range is -30°C to +60°C						
End of cylinder air	Able to sustain positive pressure down to 10 bar cylinder pressure						
Breathing performance in APR mode							
Breathing resistance				Exhalation breathing resistance of no greater than 20mm of water at 85 lpm in a negative pressure mode			
Inhalation resistance including General Purpose Filter				50mm of water at 85 lpm			
Live agent permeation performance (Data validated by ECBC, Edgewood Chemical Biological Center)							
	Requirements		Actual		Test agent	NIOSH CBRN requirements	Typical performance
Challenge chemical	Max Peak (mg/m³)	Max Cumulative (mg-min/m³)	Max Peak (mg/m³)	Max Cumulative (mg-min/m³)	Mustard (HD)	6 Hours	>6 Hours
Sarin (GB)	0.6	6	0.004	0.203	Sarin (GB)	6 Hours	>6 Hours
Mustard (HD)	0.087	6	0.005	0.8			
Materials used							
Harness on ST53 SCBA			Kevlar webbing with stainless steel and nylon hardware				
Harness on ST53SD SCBA			Nylon Cordura				
Backplate			Glass reinforced polycarbonate				
Cylinder valve			Anodized Aluminum				
ST-PAPR			GE Noryl with a 10% glass fill				
Weight for ST53 units (based on empty cylinders)				Weight for ST53SD units (based on empty cylinders)			
ST53 (excluding cylinder and mask)		6.6 lbs		ST53SD 11 cu.ft (includes cylinder but no mask)		5.2 lbs	
Carbon fiber fully wrapped, 2216 psi, 30 minute		7.75 lbs					
Carbon fiber fully wrapped, 4500 psi, 30 minute		7.4 lbs		ST53SD 17 cu.ft (includes cylinder but no mask)		4.0 lbs	
Carbon fiber fully wrapped, 4500 psi, 45 minute		9.9 lbs					
Carbon fiber fully wrapped, 4500 psi, 60 minute		11.95 lbs					
Weight for ST-PAPR				Weight for mask only			
ST-PAPR without CDV, battery or cartridges		2.5 lbs		Single Port FM53 mask (excluding filter)		1.2 lbs	
ST-PAPR with CDV, two general purpose filters and a lithium Sulphur Dioxide battery		4.4 lbs		Dual Port FM53 mask (excluding filter)		1.3 lbs	

The FM53 respirator falls within the definition of Significant Military Equipment in the United States Munitions List, International Traffic in Arms Regulations and may only be supplied outside of the United States of America to customers who are licensed by the US Department of State, Directorate of Defense Trade Controls.



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Avon's revolutionary ST53 multi-role Respiratory Protective Equipment (RPE) system has been developed specifically for specialist applications where the user needs to respond to changing operational conditions.

The ST53 product range evolved from the FM53 mask (see FM53 datasheet for further details). The FM53 mask has the unique capability to operate as a negative pressure filter mask or with positive pressure supplied air devices. The ST53 range of equipment has been developed to provide the user options to select the most suitable configuration for the application. A modular design approach is adopted enabling fast and simple equipment configuration across the ST53 range.

Option A

The FM53 mask with unique conformal filter for use as a negative pressure (APR) Air Purifying Mask.

Option C

The ST53 SCBA, a complete back frame mounted breathing apparatus with a range of cylinders to provide up to 60 minutes of operation.

Option B

The ST53SD SCBA, a short duration (up to 15 minute) positive pressure breathing apparatus.

Option D

The ST-PAPR, a powered air device that can be coupled with option B or C providing powered air capability when the SCBA is not in use or as a PAPR with option A only.

ST53™

The standard ST53 with full back frame offers 30, 45 and 60 minute lightweight carbon cylinder options

Cylinder Valve

The ST53 includes a nickel-plated brass cylinder valve with the option of locking and non-locking configurations.

Cylinder Content Monitoring

The ST53 backframe option includes a remotely accessible, chest mounted pressure gauge for monitoring of pressure and a whistle for end of service alarm which has the option to be disabled if required.

Compact Demand Valve (CDV)

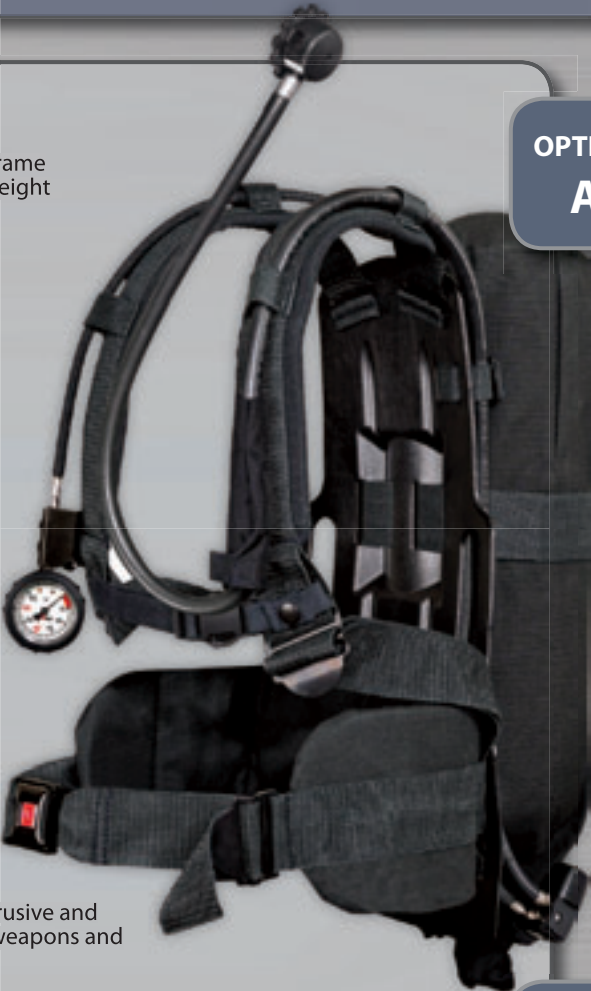
The world's smallest, most compact chemically hardened demand valve provides constant positive pressure.

With the option to mount on either side of the mask, it is unobtrusive and allows excellent integration with weapons and other personal equipment.

The CDV is attached to the mask via the standard 40mm thread connection.

Cylinder Options	Free air volume	Approximate duration
2216 psi, carbon wrapped	45 cu. ft.	30 minutes
4500 psi, carbon wrapped	45 cu. ft.	30 minutes
4500 psi, carbon wrapped	45 cu. ft.	45 minutes
4500 psi, carbon wrapped	45 cu. ft.	60 minutes +

Note: These are 'approximate' durations that are based on NIOSH breathing rates of 40 liters per minute.



OPTION A

The Multi-Role Respiratory Protection System

FM53™



OPTION B

ST-PAPR™

The ST - PAPR is a modular system which can be attached within a few moments using quick connect air line couplings. The addition of the ST - PAPR provides the additional levels of serviceability and comfort associated with powered air whilst still retaining the ability to switch instantly to the positive pressure SCBA mode when required.

- The ST- PAPR has a remote on/off switch located on the mask hose connector enabling the ST- PAPR to be easily switched on and off.
- A speed selector provides a high flow rate up to 165 liters per minute with a minimum flow rate of 125 Liters per minute at the lowest setting.
- Lithium Sulphur Dioxide battery option with a minimum 7 hour battery life.
- Lithium Ion rechargeable battery option with a minimum 6 hour battery life.
- With the ST - PAPR the integrated CDV enables the user to switch instantly from powered air to positive pressure SCBA mode when required.
- Incorporates two 40mm standard NATO thread filters.



OPTION D

ACCESSORIES

FILTER OPTIONS

- The FM53 system includes a unique close fitting filter design, giving the user greater visibility and improved weapon sighting and ergonomics.
- The general purpose filter provides protection from a wide range of CBRN hazards.
- The lower inhalation resistance particulate filters can be used specifically for particulate challenges.
- Filter mounted left or right side – 40mm standard NATO connection.

OPTIONAL EXTRAS

- Airline / decontamination attachments are available with the ST53™.
- Operator replaceable spare parts available, easy to maintain with access to key components.
- A wide range of fully compatible accessories such as hydration canteens, communication connections, vision correction system, clear and sunlight outserts and a range of storage and carry bags.
- Rapid Intervention Coupling (RIC); allowing a rescue team to attach a rescue cylinder to the SCBA.

COMMUNICATION

- For enhanced voice amplification, an optional Voice Projection Unit (VPU) with internal microphone can be connected via the Electronic Communication Port (ECP).
- Additional external communication systems can be attached via the ECP using an appropriate lead.

ST53SD™

The short duration variant provides a belt or harness carry option with 1 and 2 liter cylinder options meeting the needs of law enforcement and special forces for short-term tactical operations.

Cylinder Valve

The ST53SD includes a nickel-plated brass cylinder valve in the non-locking configuration.

Cylinder Content Monitoring

The ST53SD provides the option of either a remote whistle and pressure gauge or a single pressure gauge attached directly to the regulator body.

Compact Demand Valve (CDV)

The world's smallest, most compact chemically hardened demand valve provides constant positive pressure.

With the option to mount on either side of the mask, it is unobtrusive and allows excellent integration with weapons and other personal equipment.

The CDV is attached to the mask via the standard 40mm thread connection. Can be fitted with ST PAPR in back mounted configuration.

Cylinder Options	Free air volume	Approximate duration
11 cu. ft. carbon wrapped, 4500 psi	11 cu. ft	7 minutes
17 cu. ft. carbon wrapped, 4500 psi	17 cu.ft	12 minutes

Note: These are 'approximate' durations that are based on NIOSH breathing rates of 40 liters per minute.

